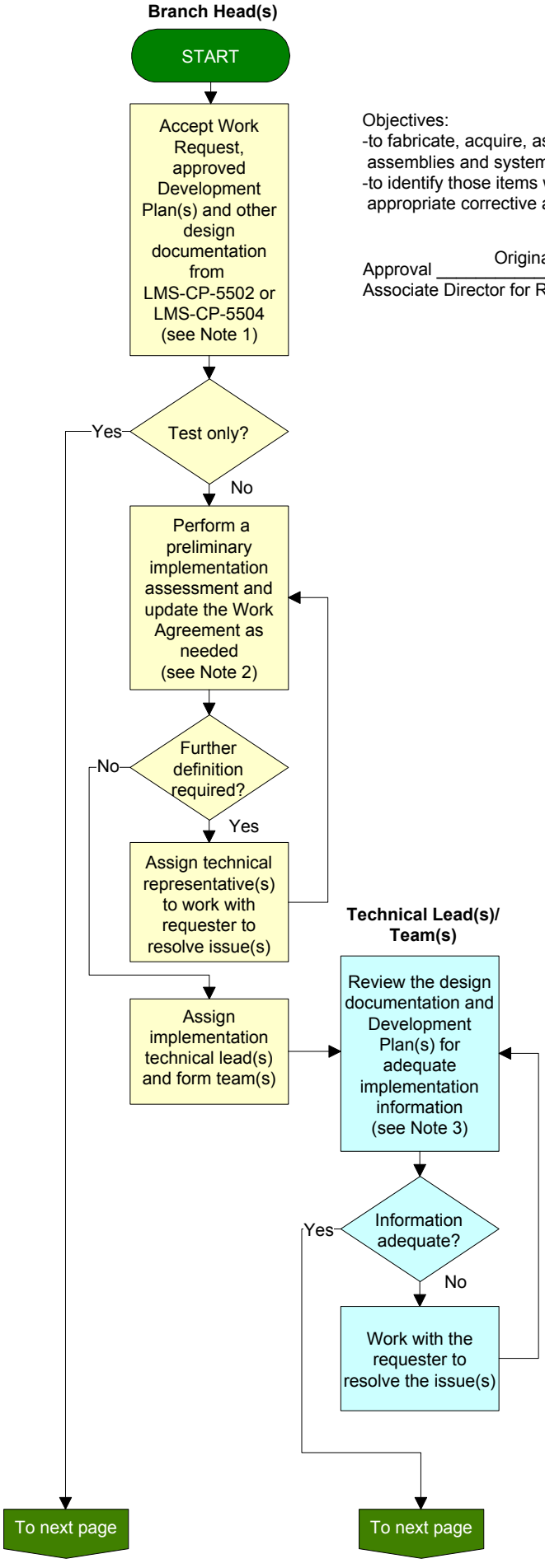
AEROSPACE SYSTEMS
IMPLEMENTATION, TESTING AND INTEGRATION
within Systems Engineering

LMS-CP-5506
Revision: C-2

Objectives:
-to fabricate, acquire, assemble, integrate, test and deliver components, assemblies and systems following approved designs and plans
-to identify those items which do not meet requirements and take appropriate corrective action

Approval Original signed on file
Associate Director for Research and Technology Competencies



General Information

The following records are generated by this procedure and should be maintained in accordance with CID 1440.7:
Work Request (LF 467)
Requirements, Performance Specifications
Development Plan
Configuration Management Plan
Product Assurance Plan
Engineering Drawings
Test Procedures
Test Results/Reports
Assembly Procedures
Installation & Activation Procedures

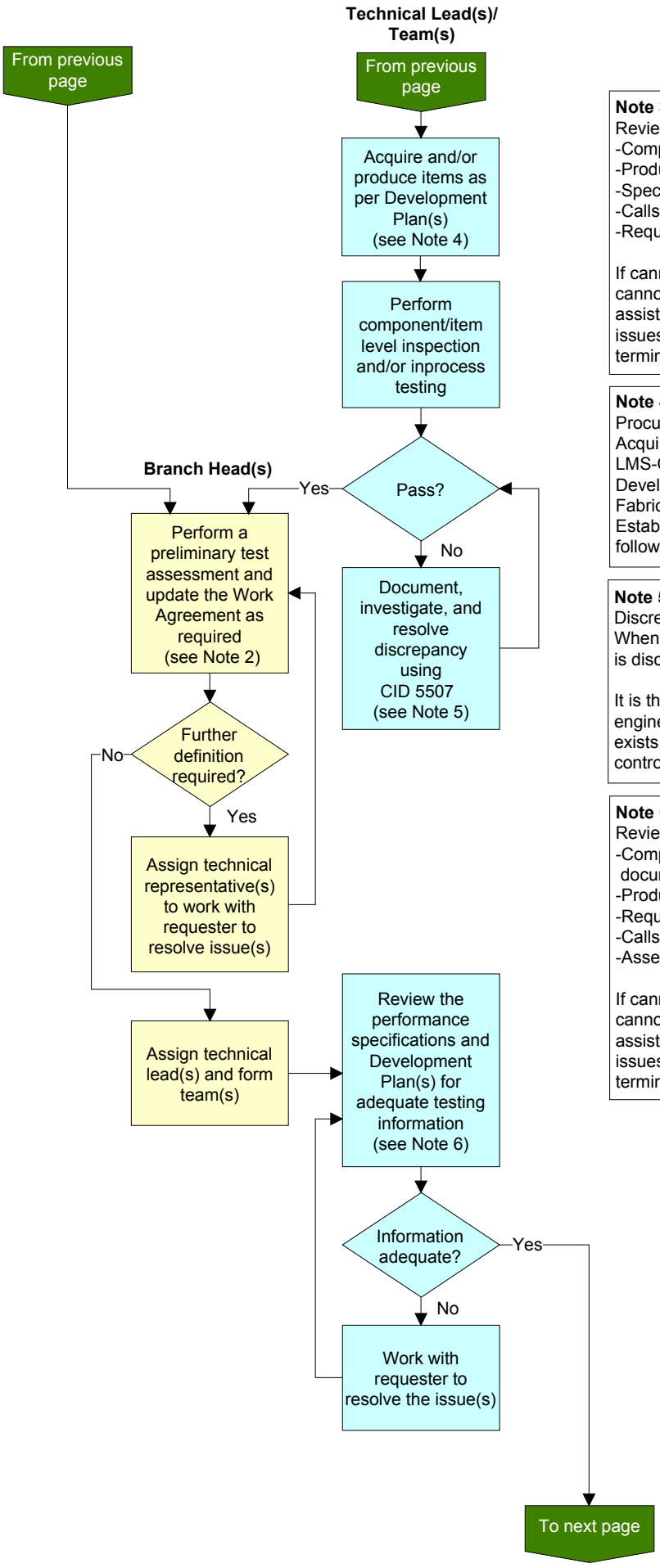
Note 1
Work request can take the form of:
-Signed Work Request/Agreement (LF 467)
-Approved Engineering Drawings (work must be covered under a signed Work Agreement)

Design documentation includes:
-Performance specifications
-Engineering Drawings
-Assembly instructions
-Data sheets

Development Plan(s) include:
-Acquisition Plan(s)
-Product Assurance requirements
-Configuration management requirements
-Planned reviews
-Test/validation requirements
-Integration requirements

Note 2
The preliminary implementation or test assessment must include consideration of the following:
-Type and purpose of end item, e.g. engineering model, prototype or deliverable for lab or flight use
-Completeness and approval of the documentation received
-Scope and complexity of the effort
-Resources required, financial, physical, and personnel
-Availability of resources and expertise, both in-house and externally
-Risk factors and schedule

If, at any time, the cumulative FTE branch commitment growth exceeds 25% of existing Work Agreement, update Work Agreement. If the activity is no longer viable, the requester must be advised that the activity cannot proceed. It is the responsibility of competency managers to assist in reestablishing priorities and resolving any conflicts/issues. If issues cannot be resolved, the activity must be recommended for termination.



Note 3
Review design documentation and Development Plan(s) for:
-Completeness and accuracy of design documentation
-Produce assurance and configuration management requirements
-Specification of fabrication controls and records
-Calls for special processing and/or handling and storage requirements
-Required certifications for items/products to be procured or produced

If cannot resolve issues, the requester must be advised that the activity cannot proceed. It is the responsibility of competency managers to assist in reestablishing priorities and resolving any conflicts/issues. If issues cannot be resolved, the activity must be recommended for termination.

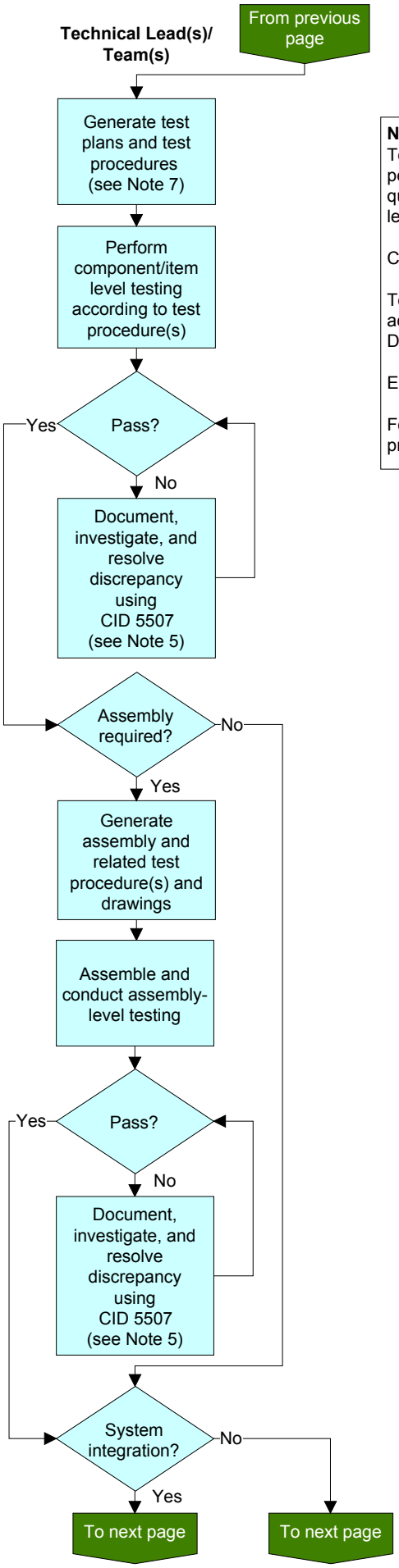
Note 4
Procure products and/or services following LMS-CP-4501.
Acquire through Space Act Agreement following LMS-CP-1719 or LMS-CP-1720.
Develop software following LMS-CP-5528.
Fabricate hardware following CID 5640.
Establish and utilize bonded and/or controlled stores as appropriate following LMS-CP-4892 or LMS-CP-5514.

Note 5
Discrepancy is documented and dispositioned using CID 5507.
When a discrepancy is encountered, the affected procedure or operation is discontinued in an orderly manner.

It is the responsibility of the Technical Lead and/or cognizant engineer/technician to determine if nonconforming item/product or failure exists. Nonconforming or failed item/product is dispositioned and controlled following CID 5507.

Note 6
Review performance specification and Development Plan(s) for:
-Completeness and accuracy of specifications and design documentation
-Product assurance and configuration management requirements
-Required test controls and records
-Calls for special processing and/or handling
-Assembly and integration plans

If cannot resolve issues, the requester must be advised that the activity cannot proceed. It is the responsibility of competency managers to assist in reestablishing priorities and resolving any conflicts/issues. If issues cannot be resolved, the activity must be recommended for termination.



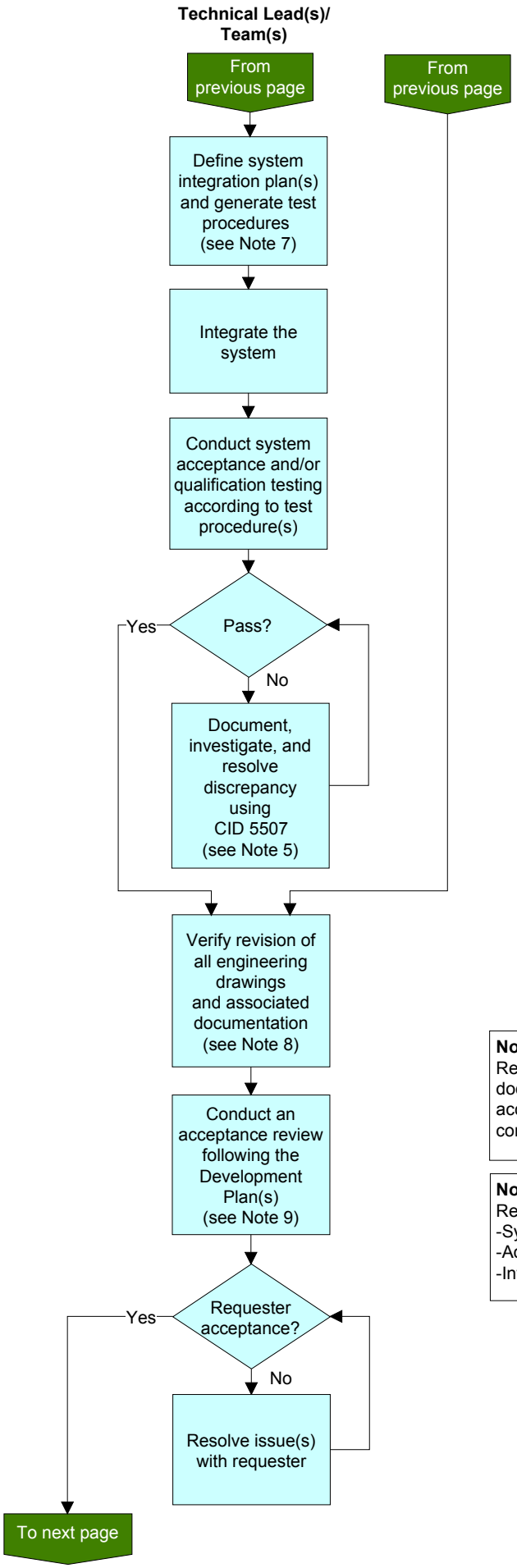
Note 7
Tests may include functional and/or environmental performance evaluation, workmanship, acceptance and/or qualification and are applied at all (component to system) levels according to the Development Plan(s).

Consideration is given to off-nominal testing as proof of design.

Test procedures are developed, reviewed and approved in accordance with product assurance requirements and Development Plan(s).

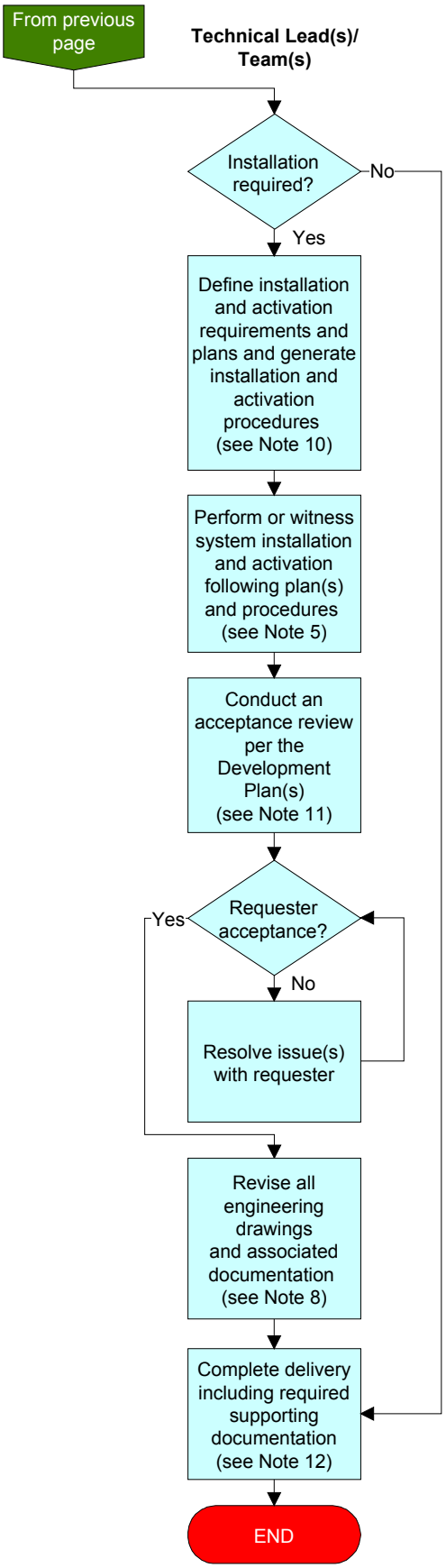
Environmental testing is conducted using LMS-OP-5509.

For space flight hardware/systems, see LAPG 5300.1 for procedure content requirements



Note 8
Revisions of baselined Engineering Drawings and associated documentation are performed following LMS-CP-5510, in accordance with the configuration management plan, and must conform to LAPG 7320.1, "Engineering Drawing System."

Note 9
Reviews may take many forms with the requester and include:
-Systems Acceptance Review
-Ad Hoc Technical Review
-Integrated Systems Review



Note 10
When defining requirements and plans, technical representatives from affected platforms, vehicles, or facilities are included on the Technical Team. Installation and Activation Procedures are developed, reviewed and approved in accordance with product assurance requirements.

Note 11
Reviews may take many forms with the requester and include:
-Flight Readiness Review
-Operational Readiness Review
-Ad Hoc Technical Review

Note 12
The required supporting documentation are identified by the requester in the Development Plan(s), requirements documentation, and/or Work Agreement(s).

Supporting documentation for delivery may include the following records:
-Procurement, including contract deliverables
-Design/verification data
-Latest revision Engineering Drawings
-Test procedures with results